

ANDROMEDA INDUSTRIES

DISCARD CRITERIA FOR SUPERFLEX SLINGS AND STROPS

The decision to discard any sling is the responsibility of the rigger or other persons using it. However, we have set out some guidelines below that may help with this decision making. We generally recommend that Superflex slings be discarded when they show signs of any of the following:

Mechanical damage

- There are more than the equivalent of one of the small cords (the basic wire ropes comprising the plaited cable) broken at any one location on the sling.
- This is equivalent to 80 broken wires within one cable diameter along the axis
- There are more than 150 broken wires distributed over a length equal to 5 cable diameters.
- There is major scuffing or abrasion on the sides of the ferrules.
- There are signs of heavy impact loads. This will be indicated by crushing or flattening of the sling, although broken wires may not be visible.
- It is known to have been severely overloaded (more than three times its WLL) This may not be obvious on visual inspection.

Other damage caused by environmental effects

- Corrosion. Internal corrosion will appear as swelling of the wire cords. This can be caused by immersion in acid baths or similar. External corrosion will appear as discoloration of the zinc coating, usually a flaky white powdery appearance.
- Effects of high temperatures. At temperatures up to about 300 deg C, the steel wires will not lose tensile strength, but the lubricant (petroleum jelly) and the polypropylene cores in each of the small cords will progressively evaporate. This will cause the sling to feel stiff and dry. At higher temperatures, 400 to 500 deg C the steel will be approaching tempering temperatures, and progressive reductions of tensile strength will result. There will be an obvious flaking off of the zinc coating when this has happened. This will lead to rust formation and general degradation.
- Effects of low temperatures. At temperatures below -100 Deg C will reduce the WLL by 25%.

The overall view is that degradation requiring discard is nearly always obvious. This is one of the main advantages of steel slings, and one of the factors that make them so safe to use over long periods of time.

This guide cannot cover all aspects of sling usage, so the main consideration is common sense in usage.

DISCARD CRITERIA FOR ANDROMEDA STEEL FLAT WOVEN SLINGS

We generally recommend that these slings be discarded when

- There are more than 2 small cords (the basic wire ropes comprising the woven belt) broken at any one location on the sling.
- There are more than 100 broken wire filaments distributed over a length of strap equal to its width – that is in a square area of the strap.
- Detrimental corrosion is present
- There are signs of heavy impact loads
- It is known to have been severely overloaded
- It has been heated above 400 deg C

Working Load Limits of Superflex Single Slings

Andromeda Technical sheet # SF101- 02



Superflex Single Slings are used for general lifting purposes where a flexible steel sling is needed. The WLL is shown in the table in tonnes of 1000 kgsf – the standard Factor of Safety is 5

Basic cable details							WLL for various included angles of two, three or four leg slings			
Cable Size or number	Minimum Breaking Force (MBF) kN	Cable nominal diameter (D) mm								
			Single Fall WLL	Cradle lift angle <30°	Choked on round load	Choked on rectangular load with edge radius > 1.0 D	<30°	60°	90°	120°
Two-5	50	10	1.0	2.0	0.7	0.5	2.0	1.7	1.4	1.0
Three-0	75	12	1.5	2.9	1.1	0.8	2.9	2.6	2.1	1.5
Three-5	95	14	1.8	3.5	1.4	0.9	3.5	3.1	2.5	1.8
Four-0	125	16	2.4	4.7	1.8	1.2	4.7	4.2	3.4	2.4
Four-5	157	18	3.0	5.9	2.3	1.5	5.9	5.2	4.2	3.0
Five-0	210	20	4.1	8.0	3.1	2.1	8.0	7.1	5.8	4.1
Five-5	270	22	5.2	10.2	3.9	2.6	10.2	9.0	7.3	5.2
Six-5	345	26	6.7	13.1	5.0	3.4	13.1	11.6	9.4	6.7
Eight-0	530	32	10.3	20.2	7.7	5.2	20.2	17.8	14.5	10.3
Ten-0	790	40	15.3	30.0	11.5	7.7	30.0	26.5	21.6	15.3
Twelve-0	1110	48	21.6	42.1	16.1	10.8	42.1	37.2	30.3	21.5
Fourteen-0	1460	56	28.3	55.5	21.2	14.2	55.5	49.0	39.9	28.3
Seventeen-0	2168	68	42.1	82.5	31.6	21.1	82.5	72.8	59.4	42.1
Twenty-0	3015	80	58.5	114.7	43.9	29.3	114.7	101.2	82.5	58.5
TwentyFour-0	4340	96	84.3	165.2	63.2	42.1	165.2	145.8	118.9	84.3
Loading factors for various configurations based on the single fall WLL			1.0	1.96	0.75	0.5	1.96	1.73	1.41	1.0

These WLL figures are derived in accordance with AS 1666.1

Notes on these calculations: to convert the list MBF of Superflex cable in kNs to WLL of a Superflex sling in tonne (1000kgsf) made from that cable, use the following procedure – divide the MBF by 49.05 (9.81 x 5), then multiply this result by 0.95 to allow for the 5% reduction for sling assembly as required by AS 1666.1. (the all up divisor = 51.5)

This provides the WLL for a sling in single fall configuration, and from this all the other configurations are calculated.

Please note – figures are rounded to the closest decimal point